REMARKS

Applicants have canceled all pending claims without prejudice and added new Claims 75-118 in order to seek protection for one preferred embodiment of the invention. Support for the new claims can be found in the original claims as filed and throughout the specification. Specifically, support for Claims 101-106 to a vector, and methods 107-111 (for manufacturing/expression methodology in cell culture) are supported in the present specification at page 50, lines 20-25 explicitly, and throughout the specification at for example, page 1, line 17, paragraph bridging pages 9-10, page 48, line 10, and page 51, line 18. Support may also be found at, for example, page 55, Example 11. The remaining claims are essentially as originally presented with the added limitation that the antibody binds 5T4 antigen. Support for this limitation is found throughout the specification. See for example, present specification at page 11, lines 5-20 and Example 1. Accordingly, no new matter is added by this amendment.

Rejections under §112, second paragraph

The Examiner rejected Claims 9, 38 and 61-64 as being indefinite under 35 U.S.C. §112, second paragraph. This rejection is deemed moot as these claims have been cancelled. Further, the respective language in Claims 9, 38, 54-56 and 61-64, identified by the Examiner as allegedly giving rise to indefiniteness, is not present in new Claims 75-118.

The Examiner also rejected Claims 54-56 as being indefinite because they depended from cancelled Claim 30. This rejection is also now deemed moot as Claims 54-56 have been cancelled.

The Examiner also rejected Claims 25, 33, 58, 68, 70, 73 and 74 under §112, second paragraph as being incomplete for omitting essential steps. These claims have been cancelled. The methods recited in new Claims 75-118 recite all essential steps. Accordingly, Applicants respectfully assert that this rejection is no longer applicable to the new claims.

Rejections under §112, first paragraph

Written Description – The Examiner rejected Claims 1-10, 12-16, 18-21, 24, 25, 27-29, 31-34, 36-38, 47-53, 57, 58 and 60-74 as lacking written description support under 35 U.S.C. §112, first paragraph, for the recited genera of tumor-interacting proteins. More particularly, the Examiner indicated that "the specification only discloses one tumor interacting protein which binds to a trophoblast cell surface antigen– an antibody which binds to the 5T4 antigen." In

order to gain expeditious protection for a commercial embodiment of Applicants' invention, and without acquiescing to the Examiner's rejection, the tumor-interacting protein is now recited in new Claims 75-118 as an antibody that binds 5T4 antigen. Accordingly, Applicants respectfully assert that the §112 written description rejections cannot be sustained against new Claims 75-118.

Enablement – The Examiner also rejected Claims 1-10, 12-16, 18-21, 24, 25, 27-29, 31-34, 36-38, 47-53, 57, 58 and 60-74 as lacking an enabling disclosure under 35 U.S.C. §112, first paragraph, for the full scope encompassed by those claims. However, the Examiner explicitly noted that the specification was enabling for "[a] method for inhibiting the growth of a tumor in a mammal wherein said method comprises directly administering to said tumor a vector comprising a polynucleotide which encodes and expresses an antibody that binds to a 5T4 trophoblast surface antigen and an antitumor gene..." (See page 7, ¶14 of the outstanding Office Action, Paper 23). Thus, in order to expedite allowance of claims directed to this embodiment of Applicants' invention, and without acquiescing to the Examiner's enablement rejection, Applicants now present new Claims 75-118, which recite "[a] method for inhibiting the growth of a tumor in a mammal comprising delivering directly to the tumor a vector comprising a first polynucleotide sequence encoding an antibody in operable linkage with a second polynucleotide sequence encoding an anti-tumor protein, wherein said antibody binds 5T4 antigen on cells of said tumor, and wherein said anti-tumor protein is expressed in cells of said tumor thereby inhibiting the growth of said tumor" (claim 88). Accordingly, Applicants respectfully assert that the §112 enablement rejections are not applicable to new Claims 75-118.

Rejections under §103

Anderson in view of Myers – The Examiner rejected Claims 1-10, 12-16, 18, 20, 24, 27, 28, 33, 34, 36, 37, 47-53, 58, 60-65 and 71-74 under 35 U.S.C. §103 as being obvious over Anderson et al. in view of Myers et al. Anderson teaches targeting of a retroviral vector to tumor cells by modifying a viral envelope polypeptide to include a tumor-interacting protein (e.g., an antibody or fragment thereof). Anderson also teaches delivery to the targeted tumor cell of a polynucleotide of interest encoding an anti-tumor protein (e.g., a cytokine). However, Anderson neither teaches nor suggests a vector comprising a first polynucleotide sequence encoding an antibody that binds 5T4 antigen and a second polynucleotide sequence in operable linkage with the first polynucleotide sequence and encoding an anti-tumor protein. Indeed, Anderson is

devoid of any teaching related to an antibody directed against the 5T4 antigen. Likewise, Anderson fails to teach or suggest to the skilled artisan an operable linkage between the polynucleotides encoding the targeting polypeptide and a therapeutic protein. Moreover, Anderson teaches away from such an operable linkage because in Anderson the targeting polypeptide must be expressed as a fusion product with a portion of the binding region of the viral envelope, thereby providing the modified envelope needed for delivering the second polynucleotide encoding a therapeutic protein to the target cells.

Myers fails to teach the elements missing in Anderson. Myers teaches only isolation of the 5T4 antigen from placenta by affinity chromatography using a monoclonal antibody and isolation of a cDNA encoding the 5T4 antigen. Myers contains no teaching related to a polynucleotide encoding an antibody that binds 5T4 antigen. Likewise, there is no teaching in Myers to use an antibody that binds 5T4 antigen to target delivery of an anti-tumor protein. Thus, Applicants respectfully assert that there is no motivation, explicit or otherwise, for combining Myers with Anderson. However, even if the necessary motivation exists, as suggested by the Examiner, to make Anderson's retroviral vector tumor-targetable using Myers' antibody against the 5T4 antigen, the combination of Anderson and Myers still fails to teach a vector comprising a first polynucleotide sequence encoding an antibody that binds 5T4 antigen and a second polynucleotide sequence in operable linkage with the first polynucleotide sequence and encoding an anti-tumor protein, and methods of using such a vector for inhibiting tumor growth in a mammal comprising direct delivery of the vector to the tumor. Thus, because the combination of cited references fail to disclose or suggest all of the elements of new Claims 75-118, Applicants' respectfully assert that new Claims 75-118 are not obvious over Anderson in view of Myers.

Anderson in view of Myers and further in view of Barber – The Examiner rejected Claims 1, 18, 19, 65 and 66 under 35 U.S.C. §103 as being obvious over Anderson et al. in view of Myers et al. and further in view of Barber. The Examiner added Barber to provide teaching of a tumor-specific promoter. Applicants respectfully assert that new Claims 75-118 are patentable over the combination of Anderson and Myers for the reasons articulated above (e.g., the combination fails to teach the recited vector and methods of inhibiting tumor growth by direct delivery of the recited vector to the tumor). Barber fails to overcome the deficiencies in the teachings of Anderson and/or Myers regarding first and second polynucleotides in operable

linkage encoding an antibody that binds the 5T4 antigen and an anti-tumor protein, respectively. Thus, for the reasons detailed above, Applicants respectfully assert that new Claims 75-118 are not obvious over Anderson in view of Myers and further in view of Barber.

CONCLUSIONS

In view of the foregoing amendments and remarks the Applicants respectfully assert that the application is in condition for allowance. Applicants have made a good faith effort to address all of the Examiner's rejections and concerns. Should the Examiner have any questions or concerns which may be addressed by a telephone conversation, the Examiner is respectfully invited to contact the undersigned attorney at the phone number below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 5/30/03

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AMEND

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